

JOB ROLE – FLORICULTURIST (PROTECTED CULTIVATION)

Sector – Agriculture

(Qualification Pack Code: AGR/Q0702)



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UNIT 5: GREENHOUSE OPERATIONS

Session 2: Management of Environmental Parameters in Greenhouse

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Session Objectives

The student will be able to

- Describe instruments/systems used for monitoring environmental parameters and their management

Introduction

Climatic parameters and their management are essential for quality and quantity of greenhouse crop production. These parameters can be managed and regulated naturally as well as artificially by using different equipment. The equipment may be operated manually, hydraulically or electrically. The type of climate control systems used also depends on the size and number of the greenhouses.

The purpose of using different systems inside the greenhouse could be for cooling, heating, lowering or enhancing humidity, enriching gaseous composition, lighting, irrigation, fertigation, fogging, pesticide spraying, etc.

Equipment/System and Its Function Used Inside of Greenhouse

Cooling

By operating fan & pad in forced ventilated polyhouse; opening of side curtains in case of naturally ventilated polyhouse

Ventilation

- Inside air of greenhouse can be exchanged continuously with cross ventilation, natural air convection or artificial forced ventilation
- Exhaust fan and pad system are used in forced ventilated system and these system can be operated manually

Shading

Shading can be achieved by installing and operating the collapsible shade nets inside the greenhouse

Silver shaded nets are installed inside the greenhouse which can be opened during intense sunlight and cloudy days and closed during cold nights

Relative Humidity

- Managed by operating foggers and de-humidifier installed inside the structure
- Foggers are used to increase the humidity level inside the greenhouse
- Alternatively, de-humidifiers are used to decrease the humidity level

Carbon Dioxide

- The value of CO_2 inside the greenhouse is increased when the crop is grown inside and the side curtains are closed during the night hours.
- More quantity of carbon dioxide helps in enhancing the net photosynthetic rates of the plant
- Artificially CO_2 chambers can also be used for enhancing the carbon dioxide value.

Heating

- Heating system are used to generate heat where the outside atmosphere has near to zero or subfreezing temperature
- In India, heating system are rarely used.

Lighting

Artificial lighting can be provided with incandescent, fluorescent lamps.

Light intensity

By spreading and rolling back the shade net installed inside the greenhouse, the light intensity can be managed.

Irrigation & Fertigation

- In polyhouse, irrigation and fertilisers are applied through drip irrigation system

Summary

In this session you have learnt about instruments/systems used in greenhouse for proper management of flower crops

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